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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
PATEL, GAUTAM	
ART UNIT	**PAPER NUMBER**
2655	27

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/603,204	LEE ET AL.
	Examiner	Art Unit
	Gautam R. Patel	2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11,13-17,29-40,49,51,53-59,61 and 63* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11,13-17,29-31,36-39,49,51,53-59,61 and 63* is/are rejected.

7)☒ Claim(s) *32-35 and 40* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 11, 13-17, 29-40, 49, 51, 53-59, 61 and 63 are pending for the examination.

RCE STATUS

2. The request filed on 4-9-04 for Request for continued Examination (RCE) under 37 CFR 1.114 based on parent Application is acceptable and a RCE has been established. An action on the RCE follows.

Claim Rejections - 35 U.S.C. § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11, 49 and 51 are rejected under 35 U.S.C. § 102(b) as being anticipated by Eastman et al., US. patent 5,446,716 (hereafter Eastman).

As to claim 11, Eastman discloses the invention as claimed [see Figs. 1-6, especially 1] including detecting the defocus, detecting the tilt and compensating a write power level, comprising the steps of:

detecting the defocus of the optical recording medium [col. 3, lines 8-21 and col. 8, lines 49-66];

compensating a write power level with respect to the detected defocus [col. 6, line 47 to col. 7, line 15];

detecting the tilt of the recording medium of the optical recording medium [col. 3, lines 8-29]; and

compensating the write power level [col. 3, lines 25-29] and a write time [col. 5, lines 12-28] with respect to the detected tilt so as to shift a recording pattern with respect to the detected tilt [col. 3, lines 8-29; and col. 5, lines 12-28].

4. As to claim 49, it is a claim corresponding to the claim 11, and is therefore rejected for similar reasons set forth in the rejection of claim 11, supra.

NOTE: preamble of computer readable medium is not given any weight since it does not breadth life into the claim.

5. As to claim 51, it is a claim corresponding to the claim 11, and is therefore rejected for similar reasons set forth in the rejection of claim 11, supra.

NOTE: preamble of computer readable medium is not given any weight since it does not breadth life into the claim.

Claim Rejections - 35 U.S.C. § 103

6. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 13-17, 29-31, 36-39, 53-59, 61 and 63 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Eastman as applied to claims 11, 49 and 51 above and further in view of Toda et al., US. patent 6,272,100 (hereafter Toda).

As to claim 13, Eastman discloses:

adjusting the write power level [col. 3, lines 8-29] and the write time [col. 5, lines 12-28] required for recording with respect to the detected tilt in order to compensate for a size of a recording mark corresponding to the recording signal [col. 4, line 64 to col. 5, line 28].

Eastman discloses all of the above elements including detecting defocus and tilt of the recording medium and compensating a write power level and generating series of write pulses, and changing size of the marks as shown above. Eastman does not specifically disclose well known details of write pulse adjustment and leading pulse last pulse [cooling pulse] etc. and shifting of the recording pattern by amount and direction to the extent claimed. However Toda clearly discloses:

Shifting the recording pattern with respect to the detected tilt by both an amount that the recording pattern was shifted due to the detected tilt, and in a direction opposite [opposite direction is inherently done for the compensation] to the direction that the recording pattern was shifted due to the detected tilt [col. 4, line 42 to col. 5, line 48]; and

Both Eastman and Toda are interested in recording and reading information to and from an optical disc in most efficient way and adjusting the laser beam power of the optical system with respect signal provided from focus error and tilt and forming marks with power level changes.

One of ordinary skill in the art at the time of invention would have realized that precise mark formation on the optical disk, to improve reliability of data is a good quality to have especially in a high density recording. Therefore, it would have been obvious to have used details of pulse generation to provide precise mark formation scheme, including adjusting first and last pulses in the system of Eastman as taught by Toda

because one would be motivated to form the precise marks and thus improve the reliability of the data [col. 1, lines 46-53; Toda].

8. The aforementioned claim 14, recites the following steps inter, alia disclosed in Toda:

the write power level is adjusted to compensate a length of the recording mark; and

the write time is adjusted to compensate a width of the recording mark [col. 4, line 42 to col. 5, line 48].

9. The aforementioned claim 15, recites the following steps inter, alia disclosed in Toda:

adjusting the recording mark width comprises adjusting an ending time of a first pulse [fig. 3A, pulse A] and/or a starting time of a last pulse [fig. 3A, pulse C] of the recording pattern [col. 4, line 42 to col. 5, line 48].

10. The aforementioned claim 16, recites the following steps inter, alia disclosed in Toda:

the adjusting the power comprises adjusting a write power to compensate a length of the recording mark, and

adjusting a write power of a multi-pulse chain of the recording pattern to adjust a width of the recording mark [col. 4, line 42 to col. 5, line 48].

11. The aforementioned claim 17, recites the following steps inter, alia disclosed in Eastman:

detecting the tilt and the defocus of the optical recording medium [col. 3, lines 8-21]; and

adaptively compensating the recording pattern with respect to the detected tilt and/or defocus using a memory [fig. 1, unit 28], [col. 4, line 64 to col. 5, line 28], wherein the memory stores data comprising:

a write power level to compensate with respect to the detected defocus [col. 3, lines 8-29];

Eastman discloses all of the above elements including detecting defocus and tilt of the recording medium and compensating a write power level and generating series of write pulses, and changing size of the marks as shown above. Eastman does not specifically disclose well known details of write pulse adjustment and leading pulse last pulse [cooling pulse] etc. and shifting of the recording pattern by amount and direction to the extent claimed. However Toda clearly discloses:

Shifting the recording pattern with respect to the detected tilt by both an amount that the recording pattern was shifted due to the detected tilt, and in a direction opposite [opposite direction is inherently done for the compensation] to the direction that the recording pattern was shifted due to the detected tilt [col. 4, line 42 to col. 5, line 48]; and

Both Eastman and Toda are interested in recording and reading information to and from an optical disc in most efficient way and adjusting the laser beam power of the optical system with respect signal provided from focus error and tilt and forming marks with power level changes.

One of ordinary skill in the art at the time of invention would have realized that precise mark formation on the optical disk, to improve reliability of data is a good quality to have especially in a high density recording. Therefore, it would have been obvious to have used details of pulse generation to provide precise mark formation scheme, including adjusting first and last pulses in the system of Eastman as taught by Toda because one would be motivated to form the precise marks and thus improve the reliability of the data [col. 1, lines 46-53; Toda].

12. As to claim 29, it is an apparatus claim drawn to a method corresponding to the claim 17, and is therefore rejected for similar reasons set forth in the rejection of claim 17, supra.

13. The aforementioned claim 30, recites the following steps inter, alia disclosed in Eastman:

according to the predetermined scheme, said recording compensator adjusts the write power level required for recording the recording pulse with respect to the detected defocus [col. 3, lines 8-29].

14. The aforementioned claim 31, recites the following steps inter, alia disclosed in Eastman:

according to the predetermined scheme, said recording compensator adjusts the write power level and the write time [col. 5, lines 12-28] required for recording the recording pulse with respect to the detected tilt [col. 3, lines 8-29].

15. The aforementioned claim 36, recites the following steps inter, alia disclosed in Toda:

16. Regarding claims 36, 58, 59, 61 and 63 although combination of Eastman and Toda does not specifically disclose that the wavelength of luminance source is equal to or less than approximately 430 nm. The limitations in claim 36 do not define a patentable distinct invention over that in Eastman and Toda since both the invention as a whole and combination are directed to adjusting power for tilt and defocus. The type of laser used presents no new or unexpected results, so long as the power is varied based on the tilt and defocus. If one needs higher density one used blue laser one needs lower density one uses regular laser. Therefore, to have laser with 430 nm or less wavelength would have been routine experimentation and optimization in the absence of criticality.

17. Regarding claims 37-38, combination of Eastman and Toda does not specifically disclose that the numerical aperture is greater than or equal to 0.6 when substrate thickness is 0.3 mm or higher and numerical aperture is greater than or equal to 0.7 when substrate thickness is .3 mm or lower. It is obvious to one of ordinary skill in the

art that different wavelength would require different aperture of the lens and hence substrate thickness would also vary accordingly. The limitations in claims 37-38 do not define a patentable distinct invention over that in combination of Eastman and Toda since both the invention as a whole and combination of Eastman and Toda are directed to processing the defocus and tilt and adjusting the power accordingly. The degree in which the aperture is adjusted or substrate thickness is selected presents no new or unexpected results, so long as the compensation of the defocus and tilt in a successful way. Therefore, to have different thickness of the substrate which corresponds to different numerical aperture would have been routine experimentation and optimization in the absence of criticality.

18. As to claim 39, it is an apparatus claim drawn to a method corresponding to the claim 17, and is therefore rejected for similar reasons set forth in the rejection of claim 17, supra.

19. As to claims 53-56, they are claims corresponding to the claims 13-16 respectively, and arte therefore rejected for similar reasons set forth in the rejection of claims 13-16 respectively, supra.

20. As to claim 57, it is a claim corresponding to the claims 11 and 14, and is therefore rejected for similar reasons set forth in the rejection of claims 11 and 14, supra.

Allowable Subject Matter

21. Claims 32-35, and 40 are objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

NOTE: Claims 32-35 are allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a recording compensator that adjusts the power level with respect to the detected defocus, and also

"generates the recording pulse earlier to compensate for an amount of shift with respect to the detected tilt". It is noted that the closest prior art, Eastman and Toda shows a similar apparatus which has compensation scheme for power adjustment based on tilt and defocus. However Toda fails to disclose generating a recording pulse earlier to compensate for an amount of shift with respect to detected tilt. As to claim 40, the above art of record does not disclose that data stored in the memory comprises "a write power level and/or write time and an amount of shift required for recording to compensate when defocus **and** tilt occur together, and also and amount of shift required when defocus **or** tilt occurs". Eastman and Toda discloses storage of these parameters, but they do not disclose two different parameter stored for these two different conditions.

22. Applicant's arguments with respect to claims 11, 13-17, 29-40, 49, 51, 53-59, 61 and 63 have been considered but are moot in view of the new grounds of rejection.

Other prior art cited

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Dohmeier et al. (US. patent 5,495,466) "Write verification ...".

b. Ota et al. (US. patent 4,680,745) "Optical disk recording ..".

Contact Information

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is (703) 308-7940. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is (703) 872-9314.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Doris To can be reached on (703) 305-4827.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 305-4700 or the group Customer Service section whose telephone number is (703) 306-0377.

GAUTAM R. PATEL
PRIMARY EXAMINER

Gautam R. Patel
Primary Examiner
Group Art Unit 2655

June 3, 2004